A Systematic Review of Posttraumatic Stress Disorder (PTSD) In U.S. Veteran's Returning From Afghanistan and Iraq To Investigate Opportunities For Improving Social Support To Reduce PTSD Symptoms In Student Veterans Attending Postsecondary Institutions

By

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A Master's Paper submitted to the faculty of
the University of North Carolina at Chapel Hill
in partial fulfillment of the requirements for
the degree of Master of Public Health in
the Public Health Leadership Program

Chapel Hill

Fall 2019

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Abstract

America is facing a significant public health issue related to the mental health needs of military veterans returning from conflict in Iraq and Afghanistan. Since 2001, over 2 million veterans have returned from deployment in these countries (Vance, Miller, 2009) and studies have shown that 30 percent of returning veterans are experiencing mental health disorders (Stecker, Shiner, Watts, Jones, Conner, 2013). While serving in the military, troops encounter service-related trauma resulting in a variety of mental health related issues such as anxiety, depression, posttraumatic stress disorder (PTSD), alcohol and drug disorder, and traumatic brain injury (TBI). The second most common type of diagnoses at Veterans Health Administration (VHA) health facilities is related to mental health disorders (Spelman, Hunt, Seal, Burgo-Black, 2012) and the VHA had expenditures exceeding $44 billion in 2013 demonstrating the very heavy burden of providing for health care for veterans (Maynard, Batten, Liu, Nelson, Fihn, 2017).
A review of articles published since 2001 indicates that combat trauma leads to service-related PTSD and PTSD is associated with anxiety, depression, alcohol misuse, self-harm, suicide ideation, and suicide. The research also shows that early intervention and improved community support are useful in reducing the PTSD burden on these new veterans. Since the government provides education support to Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans, hundreds of thousands of veterans availing themselves of these GI education benefits by enrolling in colleges and universities. As such, these postsecondary institutions provide a means to providing social support to student veterans with PTSD but the research also shows that many of these institutions are not equipped to handle the special needs of the OEF/OIF veterans with PTSD. Further research is recommended to confirm the validity and practicality of developing or improving Veteran Student Centers at colleges and universities to

help veterans with PTSD transition back into civilian society. If so, then these programs may not only improve the educational attainment goals of these veterans but may also reduce the various PTSD comorbidities. Therefore, by improving the trajectory of PTSD in veterans, Veteran Student Centers may improve the quality of lives for these student veterans by also reducing anxiety, depression, substance abuse, self-harm, suicide ideation, homelessness, and suicide in veterans. In addition to improving the quality of lives of many thousands of veterans, Veteran Student Centers could also result in substantial decreases in Veteran Administration costs for treating PTSD and all of the comorbidities and thus allow this funding to be utilized to serve other veteran treatment needs. The research shows that PTSD is a natural result of combat trauma and not some abnormal behavior in veterans and more research is warranted to further investigate the current state of veteran student support at colleges and universities across the nation and to develop programs that could improve veteran student experience at postsecondary institutions and reduce the burden of PTSD in our returning veterans.

SEARCH TERMS:

Post-traumatic Stress Disorder; PTSD; veteran; postsecondary education; OEF/OIF

I. Introduction and background

The Problem

In the first decade after 2001, approximately 2.4 million American service men and women served in Iraq and Afghanistan. In that period, 1.44 million veterans separated from the military and became eligible for Veterans Administration (VA) benefits. While serving in those countries, many of these troops encountered service-related trauma resulting in a variety of mental health related issues such as anxiety, depression, posttraumatic stress disorder (PTSD), alcohol and drug use disorders, and traumatic brain injury (TBI). Over 52 percent of all diagnoses at VA health facilities are related to mental health disorders (ICD-9 category 290-319) with over 400,000 diagnoses occurring in the decade following 2001. In one study comprising 289,000 veterans, researchers found an ICD-9 diagnosis coding prevalence of 36.9 percent for mental health conditions, including 21.8 percent with PTSD, and 17.4 percent with depression. These mental health-related issues can have adverse effects on the veteran's ability to transition back into civilian life, and some of the psychosocial risks may relate to: marital instability, educational attainment problems, unemployment or underemployment, financial decline, social isolation, legal problems, homelessness, suicide ideation, or suicide (Spelman, Hunt, Seal, Burgo-Black, 2012).

The government has enacted several programs to assist veterans with reentry into society after military service. Two major examples of these programs located within the Department of Veterans Affairs (VA) are: 1) the Veterans Health Administration (VHA) to provide healthcare resources, and 2) the GI Bill, administered within a VA department, to provide educational opportunities to veterans. Unfortunately, even with these substantial nationwide programs many veterans are still having difficulty transitioning to civilian life.

This research is a survey of available literature to investigate how service-related mental health issues affect the lives of veterans after deployment to Afghanistan and Iraq and to determine if the literature identifies any program gaps or issues that may result in veterans not optimally benefiting from the VA's healthcare or postsecondary education programs.

This research indicates that many of these negative outcomes for veterans are associated with service-related PTSD and PTSD is associated with depression, substance abuse, self-harm, suicide ideation, and suicide. The research also shows that many veterans of Afghanistan and Iraq (OEF/OIF) conflicts return home with PTSD and since many veterans transition from military service to civilian life by enrolling in postsecondary education programs this research will focus on possible interventions that could be feasibly created in the postsecondary educational environment to assist student veterans with their PTSD symptoms.

History

There are approximately 22 million veterans in the U.S., and each year a large number of young adults leave high school to join the military (Hoffmire, Kemp, Bossarte, 2015). In 2018, the Department of Defense (2018) reported that over 170,000 new recruits entered the US Army, Navy, Marines, or Air Force and over 78,000 people joined the various National Guard or Reserve units. Joining the military can be particularly attractive to minorities as a route for social mobility, steady employment, and educational benefits (Kleykamp, 2012, p.273). Of the reasons for interest in military service, educational aspiration is a significant factor for many young adults joining the military (Kleykamp, 2012, p. 283). Unfortunately, by the end of their military service many of these recruits will have encountered service-related trauma that can create barriers to successful completion of their educational goals after leaving military service.

Since 2001, the U.S. has conducted military operations in Afghanistan, commonly referred to as Operation Enduring Freedom (OEF), and in Iraq, referred to as Operation Iraqi Freedom (OIF). Of the troops deployed to Iraq and Afghanistan since 2001, 30 percent of those veterans returned home with mental health problems (Stecker, Shiner, Watts, Jones, Conner, 2013). One type of mental health problem is service-related trauma resulting in Post-Traumatic Stress Disorder (PTSD) (Ellison, et al., 2012, p. 209). PTSD in veterans has also been associated with other public health concerns such as suicide (Smith, et al., 2016). Many Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans with PTSD also suffer from comorbidities (e.g., anxiety, depression, and alcohol misuse). Of the returning OIF/OEF veterans: 20 percent are diagnosed with PTSD, 18 percent have anxiety disorders, 15 percent suffer from depression, and 30 percent have substance abuse disorders (Stecker, Shiner, Watts, Jones, Conner, 2013). Two major resources American veterans returning to civilian society are: 1) the Veterans Health Administration (VHA) that provides access to health care, and 2) the GI Bill that provides access to education resources to promote the veteran's transition to civilian employment.

Additional Background Information

This section provides additional information related to the Veterans Administration healthcare and education benefits programs, information about PTSD and comorbidities associated with PTSD, and how social support is a factor in alleviating the symptoms of PTSD.

Veterans Administration

The Department of Veterans Affairs (VA) is a federal government agency that comprises several sub-departments. Within the VA's 2018 budget of over $348 billion, the two largest sub-groups,

in terms of budget, are the Veterans Health Administration ($80.2 billion) and the Veterans Benefit Administration ($187 billion) (VA, 2019b, VA, 2019c). The U.S. Veterans Health Administration (VHA) operates 168 medical centers and 1,053 clinics providing services in all 50 states and U.S. territories as the largest integrated healthcare system in America (Bounthavong, et. al., 2016, p. S69). In 2014, 9.1 million people were enrolled in the system and the VHA provided 92.4 million outpatient visits and more than 700,000 hospitalizations. A department within the VA called the Veteran Benefits Administration (VBA) determines veteran's benefits for service-related disabilities. In 2015, the VBA paid $66 billion in compensation to approximately 4 million veterans related to 19 million disabilities. Utilization patterns at the VHA indicate that the agency has a very heavy burden of providing for mental health care for veterans (Maynard, Batten, Liu, Nelson, Fihn, 2017). Veterans returning from active duty are eligible for VHA health services for five years after discharge, which reduces logistical barriers for new veterans to receive medical and mental health care (Stecker, Shiner, Watts, Jones, Conner, 2013). In the decade following 2001, approximately 772,000 veterans have utilized the services of the VHA healthcare system (Spelman, Hunt, Seal, Burgo-Black, 2012). The VHA emphasizes treatment for PTSD in the primary care setting (Stecker, Shiner, Watts, Jones, Conner, 2013) but VA and Department of Defense (DOD) guidelines recommend integrated teams involving primary care, specialty care, and social work professionals for mental health treatment. To facilitate treatment, each VHA facility has a program manager, specializing in returning Iraq and Afghanistan veterans, who coordinates patient care (Spelman, Hunt, Seal, Burgo-Black, 2012). In addition to managing compensation for veteran disabilities, the VBA also manages veteran educational benefit programs referred to as the GI Bill (VA, 2019b).

Education Benefits

The GI Bill has been referred to as one of the "most significant pieces of legislation ever produced by the federal government" due to the effect it has had on so many veterans since initially enacted in 1944. The original bill was updated over the years and most recently in 2009 to provide enhanced benefits to post-9/11 veterans and their families (VA, 2013). Active duty and honorably discharged veterans with as little as 90 days of service qualify for 40 percent of the Post 9/11 GI Bill and veterans with at least 36 months of service qualify for 100 percent of the benefit (VA, 2018). In the most recent academic year, the VBA pays 100 percent of in-state tuition or up to $24,476.79 per year for private schools, plus up to $1,000 per year in books, and a housing allowance (VA, 2019). Since the GI-Bill was revised in 2009, over one million beneficiaries (service personnel, veterans, and families) have used this VA service (Fredman, et al., 2019). In just the 2009-2010 schoolyear, the VBA provided $4.3 billion in education benefits to more than 310,000 veteran students (Cunningham, NA).

Posttraumatic Stress Disorder (PTSD)

According to the National Center for PTSD (2019), "PTSD (posttraumatic stress disorder) is a mental health problem that some people develop after experiencing or witnessing a life-threatening event, like combat, a natural disaster, a car accident, or sexual assault." PTSD can be "defined by three system clusters: re-experiencing the traumatic event, avoidance of traumatic reminders and emotional numbing, and hyperarousal". PTSD is not a new health condition unique to Iraq and Afghanistan veterans as 30.9 percent of Vietnam veterans also experienced PTSD and more than 15 percent of those veterans continued to experience PTSD as a chronic condition. Several predisposing factors for PTSD have been identified in veterans including:

lower education, younger age, and lower socioeconomic status (Koenen, Stellman, Stellman, Sommer, 2003).

It is estimated that 31 percent of veterans returning from Iraq or Afghanistan have a mental health condition (e.g., PTSD or depression), traumatic brain injury (TBI), or both. To illuminate the scale of this issue: 300,000 veterans (18.5%) have a diagnosis of PTSD or depression and 320,000 (19.5%) reported a probable TBI during deployment (RAND, 2008). Importantly, the number of mental health diagnoses in veterans has been increasing (Hunt, Cuddeback, Bromley, Bradford, Hoff, 2019). Even though military personnel are being diagnosed with PTSD and other mental health disorders, only 25% active duty personnel who are diagnosed actually receive treatment (Stecker, Shiner, Watts, Jones, Conner, 2013).

There is also an association between the severity of the service-related trauma and the later genesis of PTSD. A study of 675 Israel Defense Force male veterans indicated that soldiers diagnosed with Combat Stress Reaction (CSR), a psychological breakdown while in battle that renders the soldier unable to continue combat, showed that the greater the perception of exposure to threat that a soldier encounters during battle the greater the chances of developing PTSD (Karstoft, Armour, Elklit, Solomon, 2013). A 2016 study of over 4 million U.S. veterans determined that 44 percent of veterans with a 100 percent service-related disability had PTSD and almost a third of all VHA healthcare system users receive compensation for PTSD (Maynard, Batten, Liu, Nelson, Fihn, 2017).

If PTSD symptoms are severe or disabling, referral for specialty PTSD treatment may be warranted. The most affective specialty treatment for PTSD involves cognitive behavioral therapy (CBT). CBT can be provided through exposure therapy or cognitive processing therapy. Pharmaceutical options for PTSD include selective serotonin reuptake inhibitors (SSRIs) which

may be used in combination with CBT. Although CBT has proven to provide long term benefits, some veterans have difficulty participating in this therapy. As a result, veterans often rely on primary care providers for treatment and the most effective treatment (CBT) is underutilized in treating PTSD (Spelman, Hunt, Seal, Burgo-Black, 2012).

PTSD and depression negatively affect psychosocial function and the quality of life of returning war veterans (Pietrzak, et al., 2010). Veterans with PTSD are at an increased risk for opioid prescription, high risk use, and opioid-associated adverse events (Spelman, Hunt, Seal, Burgo-Black, 2012).

Substance Abuse

There is a rising epidemic of opioid overdoses in the United States and veterans are twice as likely as civilian Americans to die from an opioid overdose. As result of this rising epidemic, the Veterans Administration implemented the Opioid Overdose Education and Naloxone Distribution (OEND) program. The OEND program included overdose outreach education and materials to VHA healthcare providers and patients and the program resulted more naloxone prescriptions intended to reduce opioid-related deaths among veterans (Bounthavong, et. al., 2016, p. S68).

Incarceration

From 2011 to 2012, veterans comprised approximately 8 percent of U.S. prison population. Of the veteran prison population, 30 percent also have a history of homelessness. Among the incarcerated veterans who were deployed in Iraq or Afghanistan, 43 percent had an alcohol use disorder and 37 percent had a drug disorder. To reduce homelessness and recidivism while also

facilitating reintegration into the community, the VA instituted the Health Care for Reentry Veterans (HCRV) program in 2007. The HCRV program provides Specialists in all 50 states with outreach programs to 81 percent of state and federal correctional facilities. In the years 2008 through 2013, the Specialists conducted outreach visits to 32,155 veterans eligible for VHA health care services. Of the veterans contacted by the HCRV Specialists, 56 percent had contact with a VHA facility within one year and of those visiting the VHA, 69% were diagnosed with at least one mental health disorder (57%) or a substance use disorder (49%). Seventy-seven percent of the veterans receiving a mental health disorder diagnoses entered treatment within one month (Finlay, et al., 2017).

Homelessness

Homelessness is a serious problem in America. Of the homeless population, a significant number live in unsheltered conditions, making them more likely to have poorer health and placing them at greater risk of victimization and injury. In January 2014, over 170,000 people were homeless and living in unsheltered conditions. Of this homeless population, veterans have a higher rate being unsheltered than other Americans. In 2014, it was estimated that 36 percent of homeless veterans were unsheltered. These unsheltered veterans are more likely to be older white males, ages 50 through 69, and they have a higher incidence of mental health and substance abuse issues (Byrne, Montgomery, Fargo, 2016).

Depression

Depression is the third leading cause of disability worldwide and is associated with functional impairment, suicide risk, and mortality (Nelson, Abraham, Walters, Pfeiffer, Valenstein, 2014).

Depression is a significant issue for the VHA due to the large number of veterans diagnosed with depression. In 2010, approximately 17 percent (975,508) of the 5.6 million veterans receiving treatment from the VHA were diagnosed with depression at a cost of $8.6 billion. Twenty-six percent of that cost was for mental health services related to depression. The VA recognizes that peers can play a positive role in the treatment of veterans with depression and the agency has become the largest employer of peer mental health specialists in the world (Nelson, Abraham, Walters, Pfeiffer, Valenstein, 2014).

Self-Directed Harm

Self-directed harm or self-mutilative behavior (SMB) is the intentional harm of self without the intent for suicide. SMB is common in many mental health disorder populations including PTSD. SMB has also been associated with higher levels of alcohol use, hostility, and impulsivity. A study of PTSD patients at a southeastern VHA facility indicated that over half (54.8%) of the veterans engaged in one or more SMB within the past two weeks (Sacks, Flood, Dennis, Hertzberg, Beckham, 2008). A review of veterans utilizing VHA medical attention for self-harm, indicated that over half had a history of attempted suicide. Also, a study of student veterans indicated that veteran students have a greater odds (OR = 1.83, 95% CI [1.22, 2.76]) of self-harm compared to non-veteran students (Blosnich, Kopacz, McCarten, Bossarte, 2015).

Suicide

Suicide among veterans is a significant public health issue in the U.S. In 2009, suicide became the leading cause of violent and injury-related death and in 2010 the tenth leading cause of death in the U.S. (Hoffmire, Kemp, Bossarte, 2015). In the U.S., approximately 22 percent of all

suicides are veterans and veterans are twice as likely, than the general population, to die from suicide. Young male veterans between the ages of 17 and 24 years are 3.8 times more likely to commit suicide than non-military males of the same age (Smith, et. al., 2016). From 2000 to 2010 there has been a 40 percent increase for female veteran suicides reaching 34.6 per 100 thousand lives at risk, which is 490 percent higher than non-veteran females (Hoffmire, Kemp, Bossarte, 2015). The VHA treats many veterans for depression but continues to have a suicide rate seven to eight times the general population (Nelson, Abraham, Walters, Pfeiffer, Valenstein, 2014). Since the beginning of OIF/OEF, the rate of suicide for active duty military personnel serving in these two theaters has doubled and suicide has become the second leading cause of death in the military. In a national study of student veterans, 46 percent of the respondents reported thinking about suicide and 20 percent reported having a suicide plan. PTSD is strongly associated with suicide risk and 82 percent of veterans reporting a previous suicide attempt also reported significant PTSD symptoms (Rudd, Goulding, Bryan, 2011).

Suicide ideation often precedes a suicide attempt and suicide ideation has been shown to be high among veterans. However, suicide ideation has been shown to be negatively associated with a sense of purpose and greater social connectedness in veterans (Smith, et. al., 2016). War-related trauma is associated with an increased risk of suicide ideation and suicide ideation is a known predictor of completed suicide. Other predictors of suicide ideation are mental health issues such as depression, anxiety, and substance use disorder. Among these indicators, PTSD has been identified to significantly increase the risk of suicide ideation among veterans (Zerach, Levi-Belz, Solomon, 2014). Even if the veteran has not tested positive for PTSD, if trauma related symptoms are present there is an increased suicide risk and the VHA recommends a suicide risk assessment (Spelman, Hunt, Seal, Burgo-Black, 2012). The prevalence of suicide

ideation or suicide attempt is higher in college students, regardless of their veteran status, than the general population (Blosnich, Kopacz, McCarten, Bossarte, 2015).

Resilience

Resilience is the ability of a person to effectively handle and recover from adverse life experiences, e.g., service-related trauma. A variety of psychological and social system factors have been identified as affecting the level of an individuals' resilience. A social system is a complex network affecting the individual; through this network the amount of support a person receives from family, friends, colleagues, organizations is a significant determinant of a person's ability to deal with trauma. Organizations providing services or guidance can help individuals increase their ability to cope with trauma (Sippel, Pietrzak, Charney, Mayes, Southwick, 2015).

Social Support

Social systems can be categorized by two dimensions: structural and functional. The structural factor relates to the size of an individual's support network and the frequency of contacts. The functional dimension relates to the capacity of the social group to provide relevant emotional and instrumental support to the individual. Individuals with low levels of social support have been shown to experience higher levels of stress and depression, while those with high support levels experience more positive outcomes. Individuals supported by positive social systems have also been shown participate in fewer high-risk behaviors and exhibit improved coping strategies. From a neurobiology aspect, social behaviors have been shown to affect oxytocin and vasopressin both of which have shown a relationship to coping with stress. As such, preclinical and clinical studies conducted have indicated that social support "plays a key role in reducing

stress and depression" (Southwick, Vythilingham, Charney, 2005). A decline of the veteran's social networks can result in a rise of mental health symptoms (Spelman, Hunt, Seal, Burgo-Black, 2012). Low social support is also a predicting factor in long-term chronic PTSD. Not only has low social support been seen as a factor in PTSD, high community involvement has been shown as a factor in the remission of PTSD. Additionally, depression has been shown to be a factor in the course of PTSD making depression treatment an important factor in remission of PTSD (Koenen, Stellman, Stellman, Sommer, 2003). While this research is focused on American veterans, research in other countries can also be useful for comparison. A large study of Lebanon War veterans showed that social support after separation had a stronger association with PTSD development than did unit atmosphere during a soldier's military service. In addition, the level of social support immediately upon return to civilian life was a predictor of PTSD regardless of the level of trauma experienced during military service (Karstoft, Armour, Elklit, Solomon, 2013). For social support to be most effective the service must be provided at a time that the veteran is ready to receive help; effective interventions should include social support at multiple societal levels, e.g., family units, organizations, and communities (Sippel, Pietrzak, Charney, Mayes, Southwick, 2015). Veterans with chronic PTSD also prefer to receive social support from other veterans with similar experiences as compared to family or non-veteran friends (Nelson, Abraham, Walters, Pfeiffer, Valenstein, 2014). In 2002, Hogan and associates reviewed 100 studies related to social support interventions and found that 83 percent of the articles indicated at least some benefit from the interventions compared to controls (Hogan, Linden, Najarian, 2002).

This background information shows that service-related trauma results in PTSD. PTSD is associated with anxiety, depression, substance abuse, self-harm, and suicide. This information

also shows that social support strengthens an individual's resilience to trauma and is an effective method to help with PTSD symptoms.

Why the issue is important?

The issue of mental health treatment of military service personnel returning from Operation Enduring Freedom (OEF) in Afghanistan and Operation Iraqi Freedom (OIF) is important for several reasons: 1) Scale – the large number of soldiers returning to civilian life with mental health issues makes this issue is important; 2) Duration – long-term detrimental effects not only for the veterans but also for their families trying to deal with the returning veteran's suffering from mental health issues; 3) Cost – unsuccessful treatment of mental health issues in returning veterans will result in significant long term VHA funding required for ongoing treatment of these veterans; 4) Severity – if large numbers of veterans with mental health issues are ultimately resorting to suicide, this alone is reason to study this topic to learn if researchers have identified possible means to reduce these early deaths.

Research Question

The literature shows that veterans returning from Iran and Afghanistan since 2001 are having significant barriers in their transition to civilian society after deployment. The barriers include PTSD, alcohol misuse, depression, self-harm, incarceration, homelessness, and suicide. These barriers also may interfere with educational attainment goals of the hundreds of thousands of student veterans attempting to avail themselves of their GI educational benefits. This research will attempt to identify possible gaps in postsecondary programs serving veterans diagnosed with mental health issues that may more effectively address this important veteran transition

need. Does the literature show possible methods or alternatives that maybe useful for postsecondary institutions to implement with regard to supporting student veterans with PTSD or other mental health conditions to improve their educational attainment goals and reduce the negative comorbidities (e.g., substance abuse, depression, self-harm, and suicide) associated with PTSD?

II. Methods

Research Focus

This research focuses on the review published material related to the prevalence and determinates of mental health issues of U.S. veterans, and will not attempt to distinguish between the various military branches (Army, Navy, Air Force, or Marines) or differentiate between veterans leaving active duty and reservists who served in an active capacity. This review will focus on veterans of conflict returning from Afghanistan and Iraq who were discharged after 2001 with the assumption that mental health care needs of recent veterans may differ from older veterans (e.g., Vietnam War era veterans). While focusing primarily on U.S. veterans from Operation Enduring Freedom (OEF) in Afghanistan and Operation Iraqi Freedom (OIF), some literature sources may contain data for older veterans along with the veterans of primary interest and serve to differentiate between the mental health need for older and younger veterans. If research related to service-trauma PTSD associated with the military in other countries is found to be supportive of this research it may also be included. Additionally, the research will focus on postsecondary education institution programs currently supporting OEF/OIF student veterans attempting to improve their post-military futures through postsecondary education to determine any gaps or areas for improvement.

Eligibility Criteria

The literature search strategy will be limited to sources printed in English. This research will also focus on peer-reviewed journals and government websites as the primary sources for information. As the research focus is related to recent U.S. veterans returning from the wars in Iraq and Afghanistan after 2001, the literature search will not be looking extensively at veterans of other countries or earlier time periods except where that information can be used as supportive information or as a comparator to help describe differences between the American and other societies which may have an impact on the incidence and treatment of mental health issues for veterans. These comparisons may offer clues into new methods or programs to help in the treatment of U.S. veterans. Since the research focused on recent U.S. OEF/OIF veterans, limiting searches to articles published after 2001 and those published in English are appropriate and should not introduce selection bias in the analysis. The selection process will include peer-reviewed articles providing more broad information and the results will not attempt to include any sort of formal meta-analysis of data from prior research. As such, no preventive measures were developed to limit bias in the article selection process. If this research identifies possible new avenues to help veterans with mental health issues, future research may involve more stringent requirements in preparation of developing a formal program proposal to change public policy or agency programs. The data extraction process for the source material involved the researcher reviewing the material and subjectively selecting information deemed pertinent to the research topic. The subjective decision making process in this data selection method could introduce reader selection bias of the results. However, since the purpose of this research is focused on basic review of possible topics for future, more extensive, confirmatory research, this broad search criteria and subjective review method is appropriate as to not inappropriately limit

parameters that may result in excluding valuable information to inform future research topics. To promote collection of good quality information, searchers were limited to library search engine results from peer-reviewed journal articles as well as from government websites related to OEF/OIF veteran issues. Non peer-reviewed data sources will be excluded. Details for primary data sources will be collected in table format to promote consistent presentation of details from the sources however no formal data pooling or cross-study data analyses will be performed but data will be presented in a standardized and meaningful table format.

Search Strategy

Search Terms

Several search terms were required in completing various searches focusing on the multiple determinates associated with research question. The online library service, from the University of North Carolina at Chapel Hill (UNC-CH) student Sakai site link was used to access the UNC-CH library site (https://library.unc.edu/). From the library site, the Articles+ search engine was used for literature searches. Accessing the advanced search method option within Articles+, the queries were focused in most searches by selecting "subject" as the variable type parameter. Multiple searches were required and some searches were based on search terms collected in articles located in prior searches. This research utilized many search terms to gather information providing a broad understanding of the many issues related to OEF/OIF veterans and to determine if those barriers were associated with PTSD. This multi-step involved a series of library searches with subsequent searches utilizing different terms based on initial information provided in earlier searches. A selection of search terms utilized included in Table 1.

Table 1

Search Terms		
mental health services	VA hospital	outreach
posttraumatic stress	administration	outreach program
Depression	education	resilience
Warrior	college	social support
Veteran Administration	community	suicide
Veteran	homelessness	suicide ideation
VA	Transition	

Quality Criteria

While this research is not attempting to perform a meta-analysis of prior studies, to promote quality of data, this research will focus on journal articles with results utilizing significant p-values (e.g., <.05) as a criteria for inclusion in support of this research. This research also relies on the standards offered by each peer-reviewed journal review board and the content preparation process standards utilized by government websites. With the assumption that the journal review boards and government agencies have adequate standards for their publications, these sources are expected to provide accurate and unbiased information to their readers and for this research.

Approach to finding and selecting articles

Three primary methods were utilized for locating information for this research: 1) Articles+ online library search engine; 2) Google searches for government websites; and 3) citation searches within journal articles retrieved via the Articles+ searches. The Articles+ search engine was accessed via the University of North Carolina at Chapel Hill Sakai site link to UNC's library services (https://library.unc.edu/). The Articles+ searches utilized the advanced search feature to focus on specific search terms usually by "Subject Terms". If subject searches did not return adequate results, the researcher would then search the terms utilizing the "All Fields" category to broaden the search parameters. Searches normally were filtered to include only results that

included full articles available online through UNC-CH's library system to have available the entire published document. The initial review of articles usually involved the article abstract. If the abstract indicated that useful information may be found in the article or the reviewer determined from the article title the likelihood of usable information, then the reviewer would download the PDF version of the full article for review. As this is an individual research project, a single-reviewer method was utilized to: 1) select search criteria, and 2) collect information from retrieved article PDF files. Double-reviewer method was not used. Since this research project is broadly focused on initial information gathering to generate possible topics for future research, article data collection was not limited or standardized by utilizing a restrictive data collection form. The limited fields within data collection form may have biased the search process by limiting data collection to predefined types of information collected. Since the content and structure of the various articles differed, for this research, data points and information of interest were collected by printing the PDF articles and then reviewing and highlight information relevant for this research.

Study Summaries and Evidence Tables

The following section provides information deemed significant information from 14 studies that the researcher felt contributed to a better understanding of the topic and support in answering the research question about mental health issues related to veterans and how postsecondary institutions may contribute to the PTSD treatment effort.

Homeless Veterans – Mental Health Issues

Byrne and associates (2016) indicated that on one January night in 2014 there were over 170,000 homeless people in the U.S. who were living in unsheltered conditions. They also indicated that

the unsheltered homeless are more likely white, older, and identify as veterans. The unsheltered homeless are also more likely to have a history of serious mental issues (SMI) or substance use disorders (SUD) and are more commonly in poor health. Veterans also have a higher prevalence of unsheltered homelessness (36%) than non-veterans (30%) and veterans are 2.7 times more likely to experience periods of persistent homelessness (> 6 months). Between October 2012 and September 2013, Byrne et al. collected data for 4,034 unsheltered homeless veterans. These veterans were predominantly older, white males and only 7.2 percent served in OEF/OIF (see below Table-2) (Byrne, Montgomery, Fargo, 2016).

Table 2

Sheltered Versus Unsheltered Veterans		
Variable	**Sheltered**	**Unsheltered**
N	31,863	4,034
Male	90.7	96.4
Age		
18 – 29	7.2	3.8
30 – 39	12.1	7.5
40 – 40	14.6	11.8
50 – 59	34.6	41.2
60 – 69	24.4	29.2
70 +	7.1	6.4
Race/Ethnicity		
White	50.7	55.8
Black	29.1	23.7
Hispanic	7.2	6.8
Other	2.8	3.0
Missing	10.2	10.7
OEF / OIF*	14.3	7.2
Behavioral Health Conditions		
None	54.6	56.7
SUD only	8.0	9.8
SMI only	18.6	15.1
SUD and SMI	18.9	18.4
Chronic Health Condition	43.4	40.8
* Operation Enduring Freedom (OEF) / Operation Iraqi Freedom (OIF)		

The above data indicates that 88.6 percent of unsheltered veterans are 40 or more years of age and 43.3 percent have either a SUD or SMI. The researchers also indicated that the largest

subgroup of unsheltered veterans comprised low-level users of VHA services and as such these individuals would be difficult to engage with programs (Byrne, Montgomery, Fargo, 2016).

Long Term Data – PTSD and Military Service

Since most recent studies of OEF/OIF veterans utilize cross-sectional approach, this research also utilized other sources of long-term longitudinal data to confirm that military service related trauma is not limited to short-term consequences. In a 20-year prospective longitudinal study of 675 Israel Defense Force (IDF) veterans of the 1982 Lebanon War compared a group of IDF veterans identified to have Combat Stress Reaction (CSR) against a group IDF veterans without this diagnose. CSR refers to a psychological breakdown of the individual while on the battlefield and renders the soldier unable to continue serving as a military combatant. Those researchers applied several evaluation surveys to the two groups, e.g., PTSD Inventory, Family Environment Scale, Mueller's Social Network Interview, and the Social Reintegration Scale as well as two subjective combat exposure questions related to perceived life threat and battle severity. Utilizing this information, the authors created four long-term PTSD trajectories: 1) chronic PTSD; 2) recovering; 3) delayed onset; and 4) resilient. The below Table-3 indicates study results relevant to this research (Karstoft, Armour, Elklit, Solomon, 2013).

Table 3

Percent of Subject Per PTSD Trajectory		
Trajectory	**CSR Group**	**Non-CSR Group**
Chronic PTSD	20.9%	6.2%
Recovering PTSD	36.3%	10.5%
Delayed Onset PTSD	8.4%	6.9%
Resilient	34.4%	76.5%

The authors performed multinomial logistic regression analysis on the data and determined that severity of battle did not show an impact on PTSD trajectory in either group but perception of war life did impact trajectories in both groups (Karstoft, Armour, Elklit, Solomon, 2013).

Table 4

Odds Ratio of War Perception by PTSD Trajectory		
Trajectory	**Odds Ratio**	**p-value**
Chronic PTSD	1.59	0.030
Recovering PTSD	1.88	<0.001
Delayed Onset PTSD	1.90	0.026
Resilient	2.47	0.001

While unit atmosphere did not impact PTSD trajectory membership, social support and less exclusion from society at homecoming did indicate an impact in some groups (Karstoft, Armour, Elklit, Solomon, 2013).

Table 5

Significant Odds Ratios* for Social Support		
Trajectory	**Odds Ratio**	**p-value**
Chronic PTSD – CSR Group	0.40	0.002
Recovering PTSD – CSR Group	0.61	0.045
Significant Odds Ratios* for Less Exclusion at Homecoming		
Trajectory	**Odds Ratio**	**p-value**
Chronic PTSD – CSR Group Chronic PTSD – non-CSR Group	0.24 0.43	<0.001 0.044
Recovering PTSD – CSR Group Recovering PTSD – non-CSR Group	0.50 0.36	0.001 0.006
Delayed Onset PTSD – CSR Group	0.51	0.047
*Odds Ratios with 95% Confidence Intervals (only significant values provided)		

While the study shows that CSR and intense fear are both risk factors for PTSD it also showed that higher levels of social support is protective as it significantly reduced the probabilities of chronic and recovering trajectories of PTSD (Karstoft, Armour, Elklit, Solomon, 2013).

Long Term Data – PTSD and Community Involvement

Another long-term study of military personnel with PTSD was published in 2003 that focused on the impact of community involvement on development of chronic PTSD. As with the previous study in IDF troops, this study in Vietnam veterans may be indicative of what can be expected long-term if OEF/OIF veterans are not properly treated for PTSD. This 14-year follow up study of 1,377 U.S. Vietnam War veterans who served between 1961 and 1975 that were affiliated with American Legion Posts, in October 1983, located in Colorado, Indiana, Maryland, Minnesota, Ohio, or Pennsylvania. This study involved mailed surveys to the veterans and demonstrated a relationship between community involvement and remission of PTSD in veterans and the authors concluded that perceived level of community support and involvement can significantly influence recovery from PTSD. This study utilized 5-point Likert-type scales to evaluate responses related to combat exposure, perceived social support, discomfort in discussing war experiences; while community involvement and alcohol use was determined by collecting frequency of use during the past year (See Table-6 below) (Koenen, Stellman, Stellman, Sommer, 2003).

Table 6

Odds Ratio of PTSD by Risk Factor		
Risk Factor	**Odds Ratio**	**CI***
Minority Race	4.22	(1.20, 14.85)
High versus Low Combat Experience	2.49	(1.29, 4.82)
Discomfort Disclosing Experiences	1.38	(1.08, 1.76)
Community Involvement	0.67	(0.52, 0.87)
Depression Symptoms	1.11	(1.02, 1.20)
Anger	1.10	(1.02, 1.19)
*Confidence Interval is significant if not including 1		

While alcohol use and perceived social support effects were not statistically significant, the authors found that the level of combat is a predictor of PTSD. The authors also found some

association with depressive symptoms and anger. Two important factors with significant association were community involvement and the veteran's discomfort in disclosing their combat experiences as areas of research interest. Veterans more involved in their community are more likely to show remission in their PTSD symptoms and veterans who avoid talking with others about their war experiences are less likely to recover and develop chronic PTSD (Koenen, Stellman, Stellman, Sommer, 2003).

PTSD – Linked to Depression and Psychosocial Disorder

In October 2007, a survey was mailed to 1,000 Connecticut veterans resulting in responses from 272 Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans. This survey (the Connecticut OEF/OIF Veterans Needs Assessment Survey) included 1,000 potential survey recipients provided by the Connecticut Department of Veterans' Affairs who de-identified information retrieved from copies of the veteran's discharge papers. This survey utilized several assessment instruments including: Unit Support Scale, the Post-deployment Social Support Scale, the Conner-Davidson Resilience Scale, the Combat Experiences Scale, the Posttraumatic Stress Disorder Checklist (Military Version), the Patient Health Questionnaire-9, and the Psychosocial Difficulties Scale to collect the veteran's responses. The analysis was performed by various fit statistics, e.g., χ^2, root mean square error of approximation, comparative fit index, and Tucker-Lewis index. The average respondent was approximately 35 years in age and the majority were National Guard or reservists with 87% associated with Army service. See Table-7 for correlations between variables of interest (Pietrzak, et al., 2010).

Table 7

Correlations Between Variables						
Variable	**Post-dep. Soc. Supp.**	**Resilience**	**Combat Exposure**	**PTSD Symptoms**	**Depressive Symptoms**	**Psychosocial Difficulties**
Unit Support	.36**	.40**	.05	-.23**	-.31**	-.12
Post-deployment Social Support		.51**	-.19*	-.56**	-.53**	-.53**
Resilience			.04	-.53**	-.57**	-.40**
Combat exposure				.41**	.31**	.28**
PTSD Symptoms					.79**	.62**
Depressive Symptoms						.55**
*p<0.01 ** p<0.001						

The results show a positive correlation between PTSD and depression and psychosocial difficulties for veterans. Additionally, unit support and post-deployment social support show a positive correlation to resilience while also showing a negative correlation with PTSD and depressive symptoms and psychosocial difficulties. As such, post-deployment social support is indicated as a buffer to mediate PTSD and depression in returning American war veterans. The authors also suggest that early intervention with social support may increase resilience and reduce the incidence of post-deployment PTSD and other comorbid conditions in returning veterans (Pietrzak, et al., 2010).

PTSD – Veteran Beliefs About Treatment

Between November 2009 and January 2012 three hundred U.S. active duty, reserve, and separated military personnel involved with Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) were recruited to participate in a 45-60 minute telephone survey aimed to discover the most common beliefs military service personnel held about PTSD treatment. To be included in this study, the military personnel and veterans needed to have screened positive for PTSD after deployment to one or both of these conflicts. The participants were recruited through visits to armories and through social media. Of those recruited, 143 received the

intervention and the responses were categorized into four areas: 1) concerns about treatment, 2) emotional readiness, 3) stigma, and 4) logistical issues. Table-8 displays frequency and percent by category (Stecker, Shiner, Watts, Jones, Conner, 2013).

Table 8

OEF/OIF Troop Beliefs About PTSD Treatment		
Frequently Reported Categories	**N***	**%**
Concerns About Treatment	**76**	**40**
"I don't want medications."	20	26
"The doctors can't relate to me."	10	13
"I don't want group therapy."	10	13
Emotional Readiness	**67**	**35**
"I don't need treatment."	35	52
"It is too hard to talk to someone."	15	22
"I am not ready for treatment."	7	10
Stigma	**31**	**16**
"Self-Stigma"	12	39
"I will get in trouble if I go to treatment."	12	39
"Fear of being labeled"	7	23
Logistical Issue	**15**	**8**
"I don't have time."	9	60
"I am too far away from the VA."	3	20
Family Issues	3	20
*N=189 beliefs collected		

The researchers found it interesting that Stigma (16%) ranked third in frequency behind the Concerns About Treatment and Emotional Readiness categories. The most frequent concern expressed by service personnel in the Concerns About Treatment category (40%) was about having to take medication for what they considered was an emotional issue. The second most common concern about treatment was that the veterans did not think physicians could not relate to them if the medical provider had not experienced combat service. In the Emotional Readiness category (35%), some respondents indicated that they did not need treatment because they were self-medicating with alcohol which the authors thought may help in the short-term but could cause other issues later. In the Logistical Issue category (8%), 60 percent of the responses indicated that they didn't have time to receive treatment and only 20 percent responded that they were too far from a VHA treatment center (Stecker, Shiner, Watts, Jones, Conner, 2013).

PTSD – Alcohol Use Disorder and Veteran Beliefs

A national survey of post-deployment veterans conducted between July 2009 and April 2010 resulted in 1,388 completed survey responses. In this study, the researchers wanted to determine the reasons that veterans with PTSD, depression, or alcohol misuse were not utilizing mental health services. In their study sample, 43 percent screened positive for PTSD, depression, or alcohol misuse. Results of 20 percent of the subjects screened positive for PTSD, 24 percent had major depression, and 27 percent with misuse of alcohol indicates that some subjects had positive tests for multiple conditions. Of those who screened positive for at least one of these conditions, only 25 percent actually sought outpatient treatment. See Table-9 for responses for perceived problems with treatment (Elbogen, et al., 2013).

Table 9

OEF/OIF Veterans Perceived Problems With Treatment							
Group	**Alcohol (N=162)**		**PTSD or Depression (N=181)**		**Alcohol & PTSD or Dep. (N=132)**		**p value**
Problem	**N**	**%**	**N**	**%**	**N**	**%**	**p**
I don't want to be prescribed medications	105	65.6	125	68.8	94	71.1	
It's up to me to work out my own problems	105	65.2	121	66.5	108	81.7	<.01
It might harm my career	69	43.3	116	63.9	84	63.7	<.001
I don't want to talk about my war experience	62	38.5	116	63.7	103	77.8	<.001
I am concerned about the cost of treatment	73	45.7	99	54.4	74	56.3	
My unit leadership/employer might treat me differently	69	43.1	114	63.0	84	63.4	<.001
I would be seen weak by others	66	41.2	108	59.8	95	72.2	<.001
My unit/coworkers might have less confidence in me	63	39.0	113	62.1	83	63.1	<.001
I don't think treatment will help me	74	46.3	81	44.9	78	59.1	
Treatment would make me feel down on myself	64	40.0	80	44.1	86	64.9	<.001
I just don't have time	72	45.1	85	47.1	78	59.1	<.05
It's hard getting time off work for treatment	53	33.3	98	54.3	76	57.4	<.001
I don't trust mental health professionals	46	28.8	79	43.4	64	48.3	<.01
Visits would not remain confidential	51	31.4	76	41.8	62	47.0	<.05
I don't know where to go for help	53	33.4	57	31.2	54	41.1	
It is difficult getting childcare	18	10.9	46	27.4	38	29.1	<.001
I don't have adequate transportation	18	11.4	22	12.2	28	21.2	<.05
*N=1,388 sample weight adjusted to 1,102							

This study indicates that alcohol misuse is a common comorbidity for PTSD and depression. The authors stated that veterans who misuse alcohol are less likely to utilize mental health treatment or if they did avail themselves of the mental health treatment, they reported having fewer visits. As such, misuse of alcohol could lead to chronic mental illness trajectories for these

veterans. Of the reasons for not seeking out mental health treatment, not wanting to be prescribed medication, "working out my own problems", and not wanting to talk about their war experience all ranked highly in all three groups (Elbogen, et al., 2013).

PTSD – Association with Service Trauma and Beliefs

A study of active duty personnel deployed in Iraq (n=2,530) and Afghanistan (n=3,671) in 2003, surveyed combat infantry soldiers before and after deployment. This study looked at the association between combat and mental health disorders as well as perceived barriers to mental health treatment among the study participants. Table-10 shows PTSD rates associated with number of combat "firefights" (Hoge, Castro, Messer, McGurk, Cotting, Koffman, 2004).

Table 10

Prevalence of PTSD by Number of Firefights		
Firefights During Deployment	**Iraq**	**Afghanistan**
None	4.5 %	4.5 %
One to Two	9.3 %	8.2 %
Three to Five	12.7 %	8.3 %
More Than Five	19.3 %	18.9 %
Chi-Square Linear Trend	49.44 *	31.35 *
*p-value <0.001		

In both Iraq and Afghanistan there was a strong relationship between combat experiences: e.g., firefights, handling dead bodies, knowing people killed, or killing enemy combatants and in troops developing PTSD. The chi-squared linear trend results demonstrates the link between combat and PTSD in military personnel and the study showed the percentage of study subjects screening positive for PTSD, depression, or alcohol misuse was significantly higher among soldiers returning from deployment than from their pre-deployment assessment. See Table-11 for a list of perceived barriers (Hoge, Castro, Messer, McGurk, Cotting, Koffman, 2004).

Table 11

Perceived Barriers to Seeking Mental Health Services*		
Frequently Reported Categories	**N/Total**	**%**
I would seem weak	158/638	65
My unit leadership might treat me differently	403/637	63
Members of my unit might have less confidence in me	377/642	59
There would be difficulty getting time off work for treatment	354/643	55
My leaders would blame me for the problem	328/642	51
It would harm my career	319/640	50
It is difficult to schedule an appointment	288/638	45
It would be too embarrassing	260/641	41
I don't trust mental health professionals	241/641	38
Mental health care costs too much money	159/638	25
Mental health care doesn't work	158/638	25
I don't know where to get help	143/639	22
I don't have adequate transportation	117/638	18
*Results for the study group that met the screening criteria for a mental disorder (N=731)		

The study results indicate that stigma-related factors were disproportionately higher among participants who were in most need of mental health treatment. The authors of this study recommended that reducing stigma should be made a priority to improve mental health care of military personnel. They also advocated for an increase in mental health services within primary care clinics (Hoge, Castro, Messer, McGurk, Cotting, Koffman, 2004).

Mental Health Care – Perceived Barriers

In a study of active duty and reserve military personnel selected from the Connecticut Veterans Registry, surveys were sent to 1,050 individuals who served in OEF/OIF between January 2003 and March 2005. From the mailing sent by the Connecticut Department of Veteran Affairs, 285 surveys were returned. The survey included scales relating to PTSD, patient health, alcohol misuse, unit support, resilience, and post-deployment social support. From the results (N=236), the authors found that veterans who screened positive for a psychiatric disorder scored higher, than did those with a negative results, for measures of stigma and barriers to treatment. Veterans with a psychiatric disorder were more likely to endorse most of the treatment barrier reasons.

The research also indicated that negative beliefs about psychotherapy and other types of mental health care are associated with lower utilization of mental health care. The authors indicated that unit support may be useful in decreasing stigma and perceived barriers. In addition, high unit or organizational support promoted positive mood, better job performance, and organizational commitment. The authors suggested that stigma and perceived barriers to mental health treatment are modifiable risk factors that can be addressed through training. If this type of training can help soldiers to understand that PTSD is a natural response to trauma and not abnormal then the negative barriers to treatment may be reduced (Pietrzak, Johnson, Goldstein, Malley, Southwick, 2009).

Mental Health – Barriers

Vogt (2011) conducted a systematic review of fifteen studies related to mental health barriers to service by military personnel. Of these studies, 12 were quantitative and three were qualitative studies that were either focused on mental health related beliefs or mental health related beliefs emerged as an important issue within the study. While the author recognized that not all of the studies utilized validated measurement instruments, Dr. Vogt suggested that the trend across the studies shows that stigma and mental health beliefs can affect mental health care utilization. As such, educational interventions targeting misconceptions about mental health care and negative stereotypes may be a promising strategy to improve mental health treatment (Vogt, 2011).

Educational Support for Veterans

Recognizing that: 1) two million veterans from Iraq and Afghanistan are eligible for military-funded postsecondary education, 2) military branches provide few resources for transitioning

warriors into civilians; 3) a third of OIF/OEF veterans have PTSD, TBI, or depression; and 4) veterans with disabilities have lower graduation rates than other veterans, Vance and Miller (2009) distributed a survey, between September and October 2008, to 2,500 postsecondary education institutions affiliated with the Association on Higher Education and Disability (AHEAD) to determine their level of preparedness in accommodating the special needs of disabled veterans transitioning from military service. Of the 267 responses, 42 percent were from campuses located in urban or suburban settings and 55 percent of the institutions offered masters or doctoral programs while 35 percent offered two-year degrees. Seventy-eight percent of the responses were from public institutions. The distribution of wounded warriors by type of disability are provided in the below Table-12 (Vance, Miller, 2009).

Table 12

Distribution of Veteran by Disability*				
Disability	Male		Female	
	N	%	N	%
Psychological/Emotional	413	34.36	128	10.65
Health / Medical	189	15.72	48	3.99
Learning Disability	103	8.57	84	6.99
Mobility	98	8.15	15	1.25
Hard-of-Hearing	60	4.99	8	0.67
Sexual Assault / Trauma	6	0.50	29	2.41
Burned	10	0.83	0	0.00
Deaf / Blind	4	0.33	2	0.17
Speech / Language Disabilities	5	0.42	0	0.00
Visual Impairment	0	0.00	0	0.00
*n=1,202 - Note: Some students may have multiple disabilities				

The study focused on the role of the Disability Service Office (DSO) in these postsecondary institutions with regard to DSO services provided to disabled veterans. The most prevalent service provided by DSOs (51%) was in providing referrals to other offices, either within or outside the educational institution and over 70 percent of the referrals were for services located within 50 miles of the institution. Forty-nine of the respondents indicated that they did not provide coordinated services for wounded warriors and that coordination was instead provided

on 85 percent of the campuses by the Registrar's office. The most common DSO referral type was for financial aid (25%) followed by counseling (22%) and psychological testing (22%). Only 33 percent of the institutions included veteran's status in their intake forms and traditionally DSO offices waited for students to self-identify needs and document their qualifications for accommodation before providing any services. Two thirds of the DSO respondents indicated a rating of low, fair, or did not know when asked if their office was prepared to handle an influx of wounded warriors and they cited inadequate funding, lack of faculty/staff training and resources as reasons for their low rating. They also indicated a lack of knowledge of what services are already provided by the military. The 16.9 percent who rated their office above average indicated that they had assigned a dedicated point person for helping veterans and their services were coordinated with other support offices (e.g., financial aid, disability office, registrar, counseling, etc.) in the school. The DSO's most common type of therapy referral (54%) was for psychological counseling or therapy at the on-campus service provider. The researcher's top recommendations suggest that postsecondary institutions implement: 1) veteran-specific orientations for new students, 2) designated personnel to serve as point of contact for veterans, 3) a dedicated congregation place for veterans where they will feel safe, 4) coordination of university services, 5) faculty/staff training, and 6) other services to support veteran student's families (Vance, Miller, 2009).

Educational Needs of Veterans with PTSD

Noting a lack of prior research into the educational barriers facing veterans with PTSD, Ellison, et al. (2012) performed a series of focus groups with veterans from 2009 through 2010. To qualify for the study, these veterans needed to have served after 2001 and been deployed to the

Middle East. There were a total of eight focus groups totaling 29 veterans plus two one-on-one sessions for veterans who could not attend the scheduled focus groups. The veterans were stratified by age (less than 30 years and 30 plus years of age) with 54 percent of veterans in the younger group. In the sample, 88 percent of the veterans were male. The focus group discussions were recorded and then coded for analysis. The following main areas were identified by the veterans (see Table-13) (Ellison, et al., 2012).

Table 13

Common Educational Barriers Identified By Veterans	
Age Group	**Barrier**
< 30 years	Anxiety about academic readiness
< 30 years	Lack of knowledge about types of academic programs
< 30 years	Lack of counseling about educational goals
< 30 years	Reintegration difficulty (straight from high school to service and never learned life skills for independent living as a civilian
< 30 years	Overwhelming issues: e.g., homelessness, lack of family support, clinical needs, disability make adjusting to school difficult
Both groups	Difficulty accessing GI Bill and VA rehabilitation services and lack of knowledge people to go to for assistance
Both groups	GI Bill requirement for full-time class load causing too much stress and students ultimately dropping out of school
Both groups	PTSD induced anxiety during class (e.g., loud noises) and need to sit in back of classroom. Need for smaller classes, on-line classes, or evening classes.
Both groups	Memory impairments requiring additional time to complete assignments or need for isolation during test taking
< 30 years	VA services were not age appropriate if groups mainly comprised of older veterans

The veterans in both groups expressed a need for peer support that allowed them to access other veterans who have gone through similar challenges and could give them advice on how to overcome their educational barriers. Both groups also indicated that individuals have different needs and support should be tailored to individual veteran's needs. Some veterans only need to know where to find the information they need when they need it while other veterans require mentor-like support to effectively handle barriers. Many veterans suggested their desire to have integrated support provided at VHA centers where they could receive educational support while they are at the VHA center receiving clinical services. They also suggested that schools should be more integrated with the VHA hospitals. For example, visits to schools could be scheduled

for veterans or school representatives would come to the VHA hospitals to discuss educational issues with interested veterans. Additionally, many suggested that schools should provide one-on-one advocates who would help the veterans navigate the admissions and financial aid processes. The veterans also provided several suggestions that postsecondary institutions could implement to make their campuses more veteran friendly (see Table-14) (Ellison, et al., 2012).

Table 14

Postsecondary Suggestions Identified By Veterans
Improvement Area
Provide counselors or veteran's representatives with VA contacts for referral of medical or mental health services when requested by veterans
Provide a VA benefit information session at the beginning of the semester
Create a formal student veteran organization on campus
Arrange informal social events tailored to student veterans
Designate veteran-specific floors in student dormitories
Develop veteran support groups that would be run by their peers on campus
Have a veteran's representative designated and provide drop-in hours for academic and administrative services support
Develop and implement training for faculty and college administrators to improve knowledge and awareness of PTSD symptoms
Provide educational accommodations for veterans to attend needed health care appointments
Provide outreach to improve veteran's awareness of VA clinical services and where to go for help

This research shows that veterans need assistance accessing and dealing with the many bureaucratic forms and processes to receive clinical services from the VHA as well as understanding how to succeed in their postsecondary education goals and overcome educational barriers. Education institutions need to provide educational support tailored to the needs of veterans and especially for veterans with mental health needs including an active case manager or veteran's advocate who can tailor their support to the specific needs of each veteran (Ellison, et al., 2012).

Veteran Postsecondary Education – Functioning Issues

Research has shown that veteran students experience social and emotional difficulties and, compared to traditional students, veterans experience more problems with anger and hostility

while also more often having to manage work and family obligations. Veteran students feel less supported while pursuing their educational goals and experience depression and suicidality. Veteran students also engage in binge drinking and drug abuse. Smith and his associates conducted a study at three universities in the Northeast to determine if veteran students function differently than traditional students and if trauma is a factor in student functioning. The sample included 445 traditional students and 61 veteran students where 24 percent were freshmen, 26 percent were sophomores, 30 percent juniors, and 19 percent were seniors. The gender distribution was 31 percent male and 69 percent female and 61 percent of the students were between the ages of 18 and 21 years. The results indicated that veteran students were more likely to have experienced trauma ($\chi^2 = 96.931$, $p < .0001$). Table-15 below shows the results of the student adjustment categories utilizing 2-tailed *t* tests (Smith, Vilhauer, Chafos, 2017).

Table 15

Veteran Versus Traditional Student Functioning Differences		
Domain	***t*(504)**	**p value**
Fitting In	1.989	.047
Health	-1.119	.905
Emotional Adjustment	0.019	.985
Productivity	-1.929	.054
Career Support	-1.458	.145
Social Engagement	1017	.827

Of the functioning categories, the researchers only found a statistically significant difference in the "Fitting In" domain category. However, when the authors used a *t* test comparing all students with a history of trauma (veteran and civilian) against the other students, the trauma group indicated a difference in the Fitting In domain ($t(488) = -3.359$, $p = .001$)) but none of the other functioning categories. The authors concluded that the risk factor was actually trauma and not veteran status that predicted a student's ability to fit in to civilian life (Smith, Vilhauer, Chafos, 2017).

Veteran Student Coping in Academia

The U.S. government has invested over $39 billion in post-9/11 GI Bill programs but veterans are experiencing low graduation rates. Gregg and his associates conducted a 40-item Qualtrics™ questionnaire pilot study of student veterans recruited from the local University of Kentucky's Veteran Resource Center (VRC) to identify: 1) potential barriers or supports for transitioning from the military to postsecondary education, and 2) student veteran's critical needs. To qualify, the veteran students needed to be from 20 to 45 years old and no more than three years removed from a combat tour and could not still be on active military duty. Half of veteran student sample for the study (52%) had three to five years of military service and 38 percent reported five to ten years of service. Seventy percent veterans reported having served multiple deployments and 42% indicated that they were receiving VHA care for a mental health disorder. Table-16 below lists some transitioning factor responses received from the pilot study (Gregg, Kitzman, Shordike, 2016).

Table 16

Veteran Coping Mechanisms		
Survey Question	**n = 13**	**%**
Use of military decision-making skills in school*	10	77
No negative mental effects following combat service*	*4*	31
Uses military experiences/training to manage stressors*	12	93
Manages memories of combat service in a healthy manner*	11	85
Never in imminent danger during deployment*	2	15
Did not engage in enemy contact*	8	62
Had a detailed plan after the military*	9	69
Manages finances without difficulty*	8	62
Reports healthy outlet for managing stressors*	10	77
Considers Transition normal compared to peers*	7	54
Veterans' needs are supported at their university*	8	62
Confident in completing academic requirements on time*	9	69
Uses exercise to manage stress*	11	85
Fulfills daily roles within family+	6	46
Engages in activities that produce an identity different from soldiering+	9	69
Achieves restful sleep+	5	38
Eats healthy meals+	11	85
Bounces back from adversity+	11	85
Reports energy to accomplish daily tasks+	11	85
Experiences financial issues+	3	23
Communicates with peers or family members+	8	62
Sustains concentration on academic studies+	10	77

Veteran Coping Mechanisms		
Survey Question	**n = 13**	**%**
Moments of feeling down or in the dumps+	2	15
Experiences stressful combat-related memories+	1	8
Distressed with academic requirements+	2	15
Seeks out people or situations for support within the university+	5	38
Engages in a routine of physical exercise+	9	69
Utilizes the campus VRC+	5	38
*Reported in percentage of agreement +Frequency reported more than two times a week		

While this is a pilot study with a small sample size (n=13) containing data from only one university, it provides useful information. For example, the University of Kentucky has a Veteran's Resource Center (VRC) and it is being utilized two or more times each week by 38 percent of the veteran students. Eighty-five percent of the veterans perceived imminent danger during deployment however only 38 percent actually engaged in enemy contact. Interestingly, eight percent of the veterans experience stressful combat-related memories two or more times per week. Assuming the eight percent is from the 38 percent who engaged in enemy contact, would indicate that 21 percent of combat veterans are having regular stressful combat-related memories.

Veteran student feedback during this pilot study indicated several issues for further study that were discussed by the authors. For example, the veteran's different life experiences to the general student population were a perceived barrier to talking about issues with traditional students and thus veteran students preferred to engage with other student veterans for social support. While 38 percent of the student veterans were utilizing the VRC, 62 percent were not regularly taking advantage of those services. More research may determine the reason other veteran students were not utilizing the VRC's services. The authors also indicated that veteran students who perceive alienation in their school environment are more likely to have difficulty with academic requirements, experience more stress, and become socially isolated (Gregg, Kitzman, Shordike, 2016).

Needs of Student Veterans

The University of Toledo has an established Military Service Center (MSC) that serves as a centralized resource for veteran student needs and the school has been recognized by multiple organizations as being veteran friendly. The MSC included a veteran student lounge and was located on the periphery of the campus in the same building as the Financial Aid, Registrar's Office, and some other administrative functions. To provide a more convenient location for the veteran student lounge, the University developed a new lounge within the centrally located library and provided key card access to limit use to only veteran students. Researchers conducted a study of self-identified student veterans or students with some affiliation with the military from November to December 2017. The study included a 14-question online survey developed with Survey Monkey and they received 26 student responses. Most of the responses (20) were from full-time undergraduates and most of the veteran students indicated that they are on campus three or more times per week. The results indicated that while the students spend time in a variety of campus locations, more than two-thirds (18) utilize the library mainly to study, use computers, and for relaxing/socializing. While the survey did not contain any questions related to PTSD or mental health status, one student indicated as having anxiety when many people were in the lounge. A student also indicated that large windows voided the intent of the lounge as being a safe place. As a result of this survey response, the administration added curtains to make the lounge have a more secure feel for the students. The researchers suggested improving outreach to the veteran community by assigning a library liaison to the MSC who can work directly with the veteran students to better assist them in attaining their educational goals (Natal, Atwood, 2018).

Postsecondary Symposia On Student Veteran Needs

During two symposia conduced in 2012 and 2013, representatives from 15 postsecondary institutions, veterans, and other advocates agreed that the most important issue facing student veterans is mental health needs and schools should provide support to improve veteran student's chances for success. Beyond the PTSD issues faced by returning veterans, many student veterans also feel isolation due to emotional guilt arising from their military experiences and difficulty relating to other students on campus. Importantly, the symposia participants recognized that few colleges and universities have counselors trained in addressing the unique issues related to student veterans and they developed twelve recommendations (see Table 17) (Whitley, Tschudi, Gieber, 2013).

Table 17

Recommendations For Postsecondary Institutions	
Veteran Support Centers (VSC) Improvement Areas	
1	Veterans must be made aware of the school's support services and have services presented in a way to reduce potential stigma some veteran students may have concerning mental health services.
2	VSCs should ideally be staffed with veterans, providing a veteran-friendly atmosphere, who can provide a positive first impression and effective referral to specialists depending on the individual's needs.
3	VSCs should provide specialists in teach basic education skills since many veteran students may not have attended school for years and require additional support to improve educational success.
4	Veteran students with PTSD or Attention Deficit Hyperactivity Disorder may require special accommodations, e.g., a quiet room for test taking.
5	Universities should hire mental health counselors who are experienced with veteran issues and, if possible, counselors who are veterans to improve communication with the student veterans.
6	Student veterans had a highly structured environment in the military and schools should provide additional structure through an informal peer mentoring system to support student veterans.
7	Schools should establish student veteran support groups lead by trained facilitators as an efficient means to provide support to multiple student veterans simultaneously.
8	VSCs should hire experienced support group leaders or develop a facilitator training program.
9	VSCs should provide a drop-in center to support veteran students who are not comfortable being in a structured support group.
10	Since all veteran students are different, the VSCs need to have multiple entry points for support.
11	Universities need to establish a centralized information resource to coordinate the various veteran student support activities and to minimize duplication of effort.
12	Schools need to develop a comprehensive orientation program designed specifically for student veterans. Some institutions may consider offering a for-credit class designed to help freshmen student veterans succeed. If a for-credit class is not possible then the school should provide an on-campus veteran student association that offers a veteran student-specific orientation in addition to the standard student orientation.

To accomplish the above recommendations, the symposia representatives suggest that it may be necessary to form coalitions to lobby Congress for funding and to promote national adoption and at the state government level for developing school programs (Whitley, Tschudi, Gieber, 2013). These literature summaries indicate there is an association between service-related trauma and PTSD. It also shows that community support provides a significant resource in diminishing the long-term symptoms of PTDS and postsecondary institutions can play a role in providing community support for the large number of OEF/OIF veterans transitioning from the military into college life.

III. Results

Search Results

In addition to the many articles collected through the various online library searches that provided background information for this research, additional information was collected from fourteen studies published and available online through the University of North Carolina at Chapel Hill (UNC-CH) libraries.

Description of studies

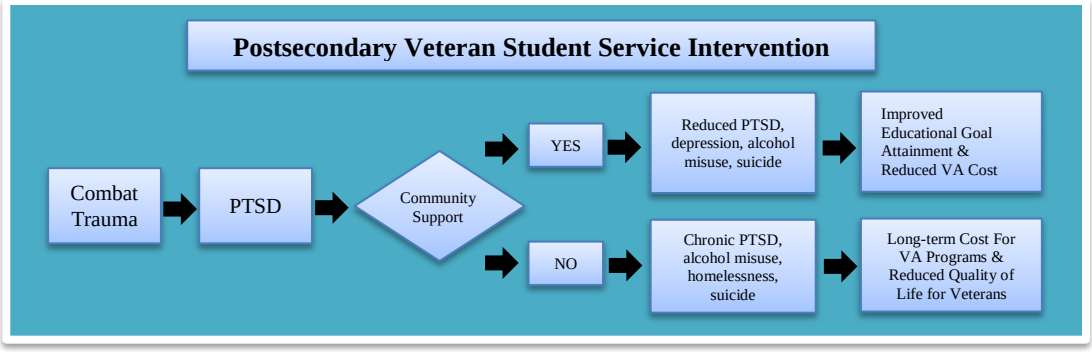
Study Overviews					
Study Focus	**N**	**Type**	**Subjects**	**Key Information**	**Source**
Homeless Unsheltered Veterans – Mental Health Issues	4,034	Survey	Homeless Unsheltered Veterans	• 88.6% over 40+ in age • 43.3% have SUD or SMI • Veterans 2.7 times more likely to be persistent homelessness • Only 7.2% served in OEF/OIF	(Byrne, Montgomery, Fargo, 2016)
PTSD and Military Service – Combat Stress Reactions	675	20-year longitudinal study	Israel Defense Force Veterans of Lebanon war	• CSR group more likely to have chronic PTSD (OR=1.59) • Intense fear risk factor for PTSD • CSR group less resilient (OR=2.47) • Social Support improved trajectory in chronic PTSD group (OR=0.40)	(Karstoft, Armour, Elklit, Solomon, 2013)
PTSD and Community Involvement	1,377	14-year longitudinal study	US Vietnam War Veterans	• Level of combat predictor of PTSD • Community involvement protective for PTSD remission (OR=0.67)	(Koenen, Stellman, Stellman, Sommer, 2003)
PTSD Linked to Depression & Psychosocial Disorder	272	survey	OIF & OEF veterans	• PTSD correlated to depression and psychosocial difficulties • Social support had negative correlation to PTSD, depression, and psychosocial	(Pietrzak, et al., 2010)

Study Overviews					
Study Focus	**N**	**Type**	**Subjects**	**Key Information**	**Source**
				disorders • Early intervention may reduce PTSD	
PTSD and Veteran's beliefs about treatment	143	telephone survey	OEF & OIF veterans	• Concern about treatment (40%) • Stigma ranked third (16%) • Did not want medications • Wanted treatment from providers with combat experience • Self-medication with alcohol	(Stecker, Shiner, Watts, Jones, Conner, 2013)
PTSD and Alcohol Use Disorder	1,388	national survey	post-deployment veterans	• 43% screened positive for PTSD, depression or alcohol misuse • 20% positive for PTSD • 24% major depression • 27% misuse of alcohol • Only 25% sought out treatment • Not wanting prescribed medication most common reason for no treatment • Alcohol misuse common comorbidity for PTSD & depression • Alcohol misuse could lead to chronic mental health trajectories	(Elbogen, et al., 2013)
PTSD and Association With Trauma	2,530	2-timepoint survey	Active duty personnel in Afghanistan and Iraq	• Linear association between trauma and PTSD • >5 firefights results in PTSD prevalence of almost 20% • Positive screening for PTSD, depression or alcohol misuse significantly higher in troops returning from deployment • Appearing weak is a treatment barrier for 65% of troops • Stigma-related barriers much higher in troops most in need of treatment • Reducing stigma should be a priority within the military services	(Hoge, Castro, Messer, McGurk, Cotting, Koffman, 2004)
Mental Health Care – Perceived Barriers	236	Mailed surveys	Active duty & reserve OEF & OIF personnel in Connecticut	• Positive psychiatric disorder subjects scored higher for stigma and barriers to treatment • Negative beliefs associated with lower use of mental health care • Unit support may be beneficial to decrease stigma and barriers • Stigma and perceived barriers are a modifiable risk factor addressed through training	(Pietrzak, Johnson, Goldstein, Malley, Southwick, 2009)
Mental Health – Barriers	n/a	systematic review	Military personnel	• Mental health belief can impact care utilization • Educational interventions about misconceptions promising strategy to improve mental health treatment	(Vogt, 2011)
Educational Support for Veterans	267	survey	Postsecondary education institutions	• Survey addressed to Disability Service Office (DSO) staff • Most common DSO service is referral to other offices with 51% to on-campus service providers • Wounded warrior support most commonly provided by Registrar Office (85% of campuses) • DSOs waited for students to self-identify needs and qualifications before providing services • Two-thirds of DSO indicated below average support or didn't know • Lack of funding and inadequate training of staff and faculty • 16.9% provided coordinated support for	(Vance, Miller, 2009)

Study Overviews					
Study Focus	**N**	**Type**	**Subjects**	**Key Information**	**Source**
				veteran students • Recommend veteran-specific orientation for new students, designated staff to serve veterans, and dedicated congregation place on campus for veteran students, coordination of services, faculty & staff training	
Educational Needs for Veterans with PTSD	29	focus groups	Veterans deployed to Middle East after 2001	• Need for peer support from other student veterans for advice on overcoming educational barriers • Support must be tailored to individual's needs • Need integrated support between clinical and educational services • Offer campus visits for veterans • University staff should visit VHA hospitals to provide outreach • Provide one-on-one advocates to help with admissions & financial aid process • Have veteran support center on campus with drop-in hours • Implement training for university staff and faculty	(Ellison, et al., 2012)
Veteran Postsecondary Education – Functioning Issues	504	survey	Veteran and traditional students at 3 Northeast universities	• Veteran students more likely to have experienced trauma • Students with trouble have more difficulty fitting in on campus	(Smith, Vilhauer, Chafos, 2017)
Veteran Student Coping in Academia	13	Online survey pilot study	Univ. of Kentucky student veterans	• Only 62% of veterans feel their needs are supported on campus • Only 38% regularly use the Veteran Resource Center (VRC) • Veterans prefer to engage with other student veterans for social support • Veterans who perceived alienation more likely to have academic difficulty and become more socially isolated	(Gregg, Kitzman, Shordike, 2016)
Needs of Student Veterans	26	Online survey	Univ. of Toledo veteran students	• University has a Military Service Center (MSC) co-located with other university services • University created veteran student-only study and socialization area centrally located on campus in the library • Upon request, university covered large windows in study area to make veterans with PTSD feel more safe • Students also suggested having a library liaison to the MSC to help veteran students obtain educational goals	(Natal, Atwood, 2018)

Synthesis of the Evidence

While a quantitative synthesis of the evidence was not performed, a qualitative review of the data was conducted to identify possible trends indicative of potential topics for future research.



When combining the study information as a continuum, this research indicates that military service-related PTSD is a significant issue both in terms of human quality of life and also financial burden on the U.S. government. However, the research shows a direct relationship between PTSD and quantity of combat traumas and therefore service-related PTSD may contain the possibility of early screening and early intervention while troops are still serving within the military. In addition, community support offers a second phase of possible intervention through postsecondary educational institutions funded through current GI-Bill benefits. As such, universities can offer a more supportive "veteran friendly" environment where soldier's transition to civilian life can be improved through various administrative and peer-support initiatives. This improvement in community support within the postsecondary environment may not only lead to improvements in educational goal attainment but also serve to reduce PTSD symptoms and reduce factors that may lead to delayed PTSD occurrence. The studies indicate that improving the trajectory of PTSD in service personnel may also have a positive impact for several PTSD comorbidities including: anxiety, depression, alcohol misuse, homelessness, and suicide. Therefore, the research results, when synthesized across the fourteen studies, indicates

that opportunities exist to reduce the negative impact of various mental health issues facing many new veterans which is burdening the VHA system by implementing Veteran Student Center services in postsecondary institutions.

IV. Discussion

Primary Results

Due the large number of U.S. veterans exiting military service since 2001, even a small percentage of troops incurring negative service-related conditions warrant further research. Given that over 30 percent of veterans screen positive for mental health disorders, e.g., PTSD, anxiety, depression, alcohol and drug disorders, or TBI, the urgency to improve the trajectory of veterans post-military civilian lives is even more apparent (RAND, 2008).

This research indicates that PTSD and associated mental health disorders are having substantial negative affect on the life trajectory of many thousands of U.S. veterans of the Iraq and Afghanistan conflicts (RAND, 2008). The results also indicate that social support can have a positive impact on veterans experiencing PTSD (Southwick, Vythilingham, Charney, 2005). More than two million veterans from the Iran and Afghanistan conflicts are eligible for educational benefits through the GI-Bill (Vance, Miller, 2009). Many student veterans may have unmet social support and educational support needs and also untreated PTSD. Since PTSD has been shown to adversely affect educational attainment goals of veterans and since the federal government is funding much of those postsecondary efforts through the GI-Bill, federal funds are being expended potentially with diminished results (suboptimal graduation levels). In addition, the VHA is spending large sums annually to treat veterans with PTSD and associated comorbidities as well as paying billions of dollars per year in compensation for these service-

related PTSD disabilities, therefore effective PDST treatment is also of vital concern to the VA. The research also showed that mental health disorders are not always short-term health issues and that untreated chronic-PDST may lead to a long-term burden for veterans lasting decades as can been seen in the many unsheltered homeless people who are male veterans over the age of 40 suffering from mental illness. Lastly, the research indicated that veterans are much more likely to die by suicide than civilians but social support has been shown effective in improving the trajectory of PTSD and reductions in PTSD may reduce veteran suicides. Since postsecondary education is the first destination for many OIF/OEF veterans, improved social support provided through veteran student programs coordinated through an on-campus Veteran Student Center may provide an effective method to improve treatment of PTSD in veterans.

Other Results

Of particular interest to this researcher was the study performed by Castro and associates that indicates a linear association between the number of firefights, experienced by infantry personnel in the U.S. Army and Marines, and the prevalence of positive screenings for PTSD. This research seems to indicate that PTSD is not a random mental health condition but instead directly related to the number of traumatic experiences an individual encounters while in the military (Castro, Messer, McGurk, Cotting, Koffman, 2004). While this literature survey project was not originally focused on the association of trauma quantity to PTSD, this variable appears to be a relevant and possibly a modifiable risk factor associated with the research topic. If the military can develop an effective intervention to prevent PTSD, the need for subsequent programs to help veterans with PTSD could be significantly reduced resulting in better quality of life for veterans and reduced financial demands on the VA. As such, while it is not central to

this research for assisting student veterans dealing with PTSD warrants special emphasis for future research.

How do these results fit with other commentaries, policies, practices?

The research purpose was not to evaluate discrepancies in commentaries, policies, or practices; but instead to gain an initial understanding of the current situation related to service-related PTSD in veterans returning from deployment from Iraq and Afghanistan and to identify possible areas for future research and to provide a baseline understanding for addressing currently identified deficits that impact veterans' mental health and wellbeing. As such, no effort was made with this regard and the literature reviewed seemed relatively consistent in their outcomes when discussing the issues of trauma, stigma, beliefs, and social support in relation mental health treatment of veterans and ultimately affecting the trajectory of PTSD recovery.

Limitations of the Review

This review was limited on several fronts. First, only peer-reviewed articles available in English and only those published after 2001 were selected for this research. Second, the topic of veteran mental health is a large and complex umbrella issue that incorporates many subtopics, e.g., PTSD, depression, alcohol and drug disorders, homelessness, self-harm, suicide ideation, and suicide. As such, to provide a thorough review of each of these individual topics would be a substantial undertaking. Therefore, given the limitations of time and resources, a collection of articles was selected across these topics in an effort to identify any common themes that may indicate possible areas future research.

Limitations of the Evidence

Many of the studies reviewed for this survey were limited in sample size with some being pilot studies for future research. Some of these studies also focused on particular veteran groups or educational institutions which may limit generalization of the issues across the broader U.S. veteran population. The selected studies utilized several data collection formats including: focus groups, online surveys, telephone surveys, mail surveys, and literature reviews which illustrate that research methods can take a variety of forms depending on the scope and purpose of the researcher's intent. As with some of the prior research, this effort was to perform initial information gathering that could precede future pilot studies or larger data collection efforts. As such, the limitations of the surveyed research are not expected to degrade the efforts or results of this survey as the effort was focused on generalized understanding of the issue and identifying from the literature promising areas for future research that would be more detailed in design.

Implications for Practice

This research was intended to perform an initial survey of the topic to identify future areas for research and not to develop program areas for immediate changes in public policy or federal agency / postsecondary educational institution practice. However, should other researchers perform follow up research that supports the initial concepts identified in this research, future research may provide data that may result evidence for altering public policy, military practice, and educational support structures to improve the lives of veterans exiting the military with service-related mental health disorders.

The results also provide a baseline understanding of factors that impact the mental health of veterans returning from Afghanistan and Iraq. Of particular importance is the direct association

between the number of traumatic experiences (e.g., firefights) and the probability that an individual will acquire PTSD. The research also shows that a large number of veterans are returning to their civilian lives via postsecondary education institutions. These institutions need to be prepared to effectively support these student veterans by developing a Veteran Student Center (VSC) model to serve as a central source of information and guidance as well as facilitating various social support programs offered to student veterans. Policy changes may be required to facilitate the funding, creation, staffing, and training needed for these VSCs. Of particular need is to prepare these postsecondary institutions to accommodate the particular needs student veterans with PTSD.

Implications for Research

The goal of this research was to gain a better understanding about mental health issues affecting military veterans participating in OIF/OEF and to search for potential avenues of further research. As such, there was no intent to find immediate solutions but instead to offer, for other researchers, topics that may warrant further investigation. This research indicates that two specific areas of research are warranted. First, is that there may be a direct link between the number of service-related trauma and development of PTSD and further research may find methods to prevent PTSD while military personnel are still on active duty. Second, further research could confirm that that social support within the postsecondary education environment may contribute to reductions in PTSD symptoms and possibly prevent delayed-onset or chronic PTSD. Some research topics related to these two areas are:

1. The Castro, et al. (2004) article's finding that there is a linear relationship between the number of firefights experienced by military personnel needs to be confirmed with additional

research as this may be key in how soldiers are trained and how military branches may need to track exposure as a way to provide enhanced PTSD testing for infantry personnel in an effort to identify soldiers with early stages of PTSD as a method for preventing moderate or severe cases of the disorder and providing earlier treatment interventions.

2. Conduct a study where soldiers are provided peer support or counseling after each combat experience to determine if those sessions reduce the incidence of PTSD. Could the slope of the relationship between combat and PTSD prevalence be reduced by these post-combat sessions?

3. Research shows that PTSD has comorbidities of anxiety, depression, and alcohol / drug use disorder. A longitudinal study of active military personnel to determine if there is any temporality among these comorbidities that would be suggestive of causality. If causality could be shown between PTSD and these comorbid issues then funding may be warranted for more testing of active duty personnel (especially for those in the infantry) to prevent severe PTSD and as a result reductions of these comorbidities which may further reduce the demand for mental health treatment expense at VHA health centers.

4. Conduct larger studies of public and private postsecondary institutions including: 2- and 4-year universities and colleges, community colleges, and other facilities qualifying for GI-Bill funding to determine the prevalence of:

a. On-campus veteran support centers (VSCs)
b. What types of coordinating services are provided by on-campus VSCs
c. Prevalence and type of veteran outreach programs for VSCs, e.g., VHA hospitals, military bases, veteran-focused tours, veteran-focused orientation programs, etc.

d. Prevalence and content of cultural competency training for university faculty and staff for PTSD awareness and other special issues/needs of student veteran.

e. Prevalence of on-campus student veteran community rooms including: convenient location, appropriate size and design considered safe by students with PTSD

f. Prevalence of on-veteran social groups or support groups

g. Prevalence of availability of veteran halls in campus dormitories

5. If studies of postsecondary institutions determine a low prevalence of veteran student support or a wide range of capabilities, a registry may be developed by a university school of public health to compile a database of contact names and current institution capabilities to support veteran students. This information could be used for information sharing and efficient development of training material between VSCs at educational institutions.

6. Perform a longitudinal study of student veterans from enrollment to graduation stratified by postsecondary education type to determine if schools that have a VSC have:

a. Higher graduation rates for student veterans;

b. Greater perceived veteran educational support and satisfaction;

c. Lower rates of binge drinking, drug abuse, or suicide;

d. Lower rates of PTSD stress, anxiety, and depression, and

e. Higher rates of employment offers upon graduation.

7. Creation of an Institute for Veteran Education. The above registry could be the basis for a grant proposal to receive federal funding, from the VA, Department of Education, and/or the Department of Defense aimed at developing an academic center of excellence within a school of public health or school of higher education envisioned to become a centralized location to advocate for creation of VSCs at postsecondary institutions nationwide and to create educational

material about PTSD needs of student veterans and other special needs of veterans and disabled veterans that would be provided to VSCs for training staff, faculty, and students.

V. Leadership

Public Health needs in the United States have evolved over the decades from an early focus on sanitation issues and then emphasis on the reduction of common infectious diseases and then progressing to more recent focuses on chronic illnesses and social determinates of health. With the changes in American society, technology developments, and changes in population demographics, the need for effective leadership has, if anything, become more necessary. Leadership in developing methods in understanding what mental health issues currently exist for veterans, why they exist, and what alternatives are available to address current veterans' mental health issues within an environment of limited resources, competing priorities, organization inertia, and public policy inflexibility. For example, if research indicates that enhanced PTSD screening can be performed on military personnel as a function of the quantity of firefights then medical practice policy in the military may be altered to reduce the number of veterans requiring long-term mental health treatment thus reducing the need for student veteran social support programs at postsecondary institutions for veterans with PTSD. If this policy change can also reduce VHA expenditures for PTSD treatment then current funding could be reallocated by VA management to other unmet needs without the need for additional appropriations from Congress. However, what organizational inertia could be encountered in changing military procedures and policies to track and limit the quantity of combat experiences for each soldier?

Leadership would also be critical to effectively implement veteran support centers at postsecondary institutions across the country. To be affective in a limited budget and limited

control environment, program leaders may need to adopt a design where some activities are centralized to promote efficiency while other activities are distributed recognizing the independence of each institution (especially private colleges). For example, activities like developing websites, phone Apps, printed PTSD or GI Bill literature could all be developed centrally and provided to each college support center to prevent duplication of effort. Many of these centralized activities would also be focused on developing training material for college staff or for providing student veterans with information to correct current disinformation related to PTSD treatment methods and how cogitative behavior therapy methods can be utilized without the need for medication which was perceived by many veterans as a barrier. Alternatively, some effort must be distributed since some activities need to be customized to address local needs and requirements, e.g., identifying the specific needs for local veterans, facility space identification and authorization, and staffing. Many of these activities necessitate decentralization since control of the institutions is by persuasion and not by authority since the VA does not have a mandate (or funding) to require or fund postsecondary institution participation in a veteran student support program.

This systematic review was planned to evaluate the current situation for the thousands of veterans transitioning to civilian life after suffering from service-related trauma. Specifically, are a substantial number of veterans returning home with Posttraumatic Stress Disorder (PTSD)? If so, what are the implications for the veterans and is the Veterans Administration effectively identifying and treating these individuals. Are postsecondary institutions providing the necessary support for student veterans to successfully attain their educational goals? Leadership would be central to the VA and individual postsecondary school administrations in being able effectively address these situations and for improving the lives of thousands of veterans.

VI. Conclusion

The transition of veterans to civilian life can be difficult especially in service personnel who have experienced PTSD or other service-related trauma that make the transition more difficult. Since a significant number of veterans are experiencing mental health issues e.g., depression, anxiety, or PTSD and as many of these people may be self-medicating with alcohol or drugs; policy makers need to develop ways to provide additional support to veterans. As PTSD has been shown to be associated with difficulty attaining education goals insufficient student veteran support by postsecondary institutions may further exacerbate their PTSD and depression symptoms. Since PTSD is also associated with a higher incidence of suicide, programs to improve social support systems in postsecondary educational settings may improve the veteran's college experience and increase the likelihood of graduation and reduce factors contributing to veteran suicide ideation. With a successful support system and educational success, veterans may have an improved trajectory of their PTSD condition, less alcohol and drug abuse, reduced self-harm, lower incidence of homelessness, and ultimately a lower incidence of suicide. While causality between PTSD, social support systems, and suicide cannot be drawn from this research, this research indicates sufficient cause to continue studies to determine if veteran education support programs can be one avenue that policy makers can pursue as a means to reduce the number of veterans experiencing long-term difficulties that prevent them from successfully transitioning to civilian society The early intervention and improved social/educational support suggested in this research could benefit thousands of young veterans to have a better quality of life, e.g., fewer PTSD symptoms, less alcohol or drug abuse, improved employment careers and family lives, and importantly less unsheltered homelessness and suicide. In addition, society would benefit by less tax dollars being required to deal with treating veterans and the many co-

morbidities arising from untreated PTSD. As such, this topic is significantly important and urgent to recommend that other researchers continue with follow up and enhancing studies to increase the body of knowledge and ultimately affect public policy to improve the lives of many thousands of military veterans who served in Afghanistan (OEF) and Iraq (OIF).

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